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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/318,159 05/25/99 RHODES

H M4065.0335/P

EXAMINER

MUNSON, G

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

08/07/01

MMC2/0807

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

318,159

Applicant(s)

H. RHODES

Examiner

G. MUNSON

Group Art Unit

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— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 18 MAY 2001
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 45, 46, 49-52, 54-57, 59, 60, 68-76 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 45, 46, 49-52, 54-57, 59, 60, 68-76 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

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Claims 72 and 76 are rejected under 35 U.S.C. 112, first paragraph. The specification (Figure 8, pages 9-10) describes the "first" and "second" dielectric materials 24 and 34 as being the same, specifically, silicon dioxide. The specification does not specify another dielectric. These claims would be new matter. The "different" dielectric material is not clearly specified as to enable any person skilled in the art to make the invention. To specify the "different" material would be new matter.

The process terminology (claim 68, 73) is considered only in terms of a necessary *resultant structure* from the process. The process itself is not at issue. The device claims are *not* limited to the recited process. See MPEP 2113; *In re Brown*, 173 USPQ 685 (CCPA 1972); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980); *In re Marosi*, 218 USPQ 289, 292-293 (CCPA 1983); *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 45, 46, 49-52, 54-57, 59, 60, 68-70, 72-74 and 76 are rejected under 35 U.S.C. 103 as unpatentable over Schuegraf et al and Jeng et al '853 considered together. Impurity dopants in substrate are conventional, as applicant would agree and as shown by Jeng et al (column 3, line 61, P-substrate), which would have been obvious to use for substrate 10 of Schuegraf et al (Figure 3D). The claims remain broad in scope. The "first" area and dielectric material reads on dielectric film 24; the "second" area and dielectric material reads on dielectric material 26. The "ions" read on inherent subportions of a doped substrate 10 under trench dielectric 26. The claimed "ions" do not distinguish over other "ions" in a doped substrate 10. Note claims 49 & 57. An "active" region reads on a region adjacent a trench which is "displaced away from" an inherent "ion implanted" doped region under trench dielectric 26. An inherent "ion implanted" doped region can be chosen at an arbitrary depth to comply with claims 51, 52, 59, 60. The "memory" device (claims 46, 73) reads on a typical DRAM application taught by Schuegraf et al (column 4).

Claims 45, 46, 49-52, 54-57, 59, 60, 68-71 and 73-75 are rejected under 35 U.S.C. 102 as unpatentable as shown by Jeng '164 or Narita. See Figure 12 of Jeng; Figure 1 of Narita. For Jeng, the "first" and "second" areas and dielectric materials read on inherent subportions of dielectric layer 7; the "ions" read on inherent subportions of P type substrate 1 under dielectric layer 7 (claims 49, 57). For Narita, the "first" and "second" areas and dielectric materials read on inherent subportions of field oxide 14. The claims remain broad in scope. In Jeng, an inherent "ion implanted" P region

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under dielectric layer 7 is “displaced away from” an “active” region comprising regions 12. Similarly, in Narita, an inherent “ion implanted” P region under field oxide 14 is “displaced away from” an “active” region which comprises regions 18 & 20. The inherent oxide subportion for the “first” area can be chosen to an arbitrary thickness to comply with claims 55 and 56. An inherent “ion implanted” P region under dielectric layer 7 or field oxide 14 can be chosen at an arbitrary depth to comply with claims 51, 52, 59 and 60.

Claims 46, 49-52, 54, 55, 57, 59, 60, 68-71 and 73-75 are rejected under 35 U.S.C. 102 as unpatentable as shown by Kohara et al. See Figure 2C. The “first” and “second” areas and dielectric materials read on inherent subportions of oxide layer 2; the “ion implanted” region reads on region 3 plus inherent subportions of region 1 adjacent region 3 (claims 51, 52, 59, 60). In claims 68 and 73, the “isolation trench” does not distinguish over oxide layer 2, which extends below a surface of semiconductor substrate 1.

Claims 45, 49-52 and 68-71 are rejected under 35 U.S.C. 102 as unpatentable as shown by Kooi et al. See Figures 8, 10; column 7, line 11, to column 8, line 3. The “first” and “second” areas and dielectric materials read on inherent subportions of oxide 5 or oxide 29; the “ion implanted” region reads on zone 6 or zone 28. In claims 68 and 73, the “isolation trench” does not distinguish over oxide 5 or oxide 29, which extend below a surface of semiconductor substrate 1 or 21.

Claims 45, 49-52 and 68-71 are rejected under 35 U.S.C. 102 as unpatentable as shown by Doo. See Figures 5, 6. The “first” and “second” areas and dielectric materials read on inherent subportions of oxide 6; the “ion implanted” region comprises region 9. In claim 68, the “isolation

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trench” does not distinguish over oxide 6, which extends below a surface of a semiconductor substrate that comprises regions 1, 11, 12, 15 and 16.

Claims 49-52 and 68-71 are rejected under 35 U.S.C. 102 as unpatentable as shown by Mastroianni et al. See Figure 3J. The “first” and “second” areas and dielectric materials read on inherent subportions of isolation region 125; the “ion implanted” region reads on an inherent subportion of channel stop region 102 (claims 51, 52). In claim 68, the “isolation trench” does not distinguish over isolation region 125, which extends below a surface of a semiconductor substrate that comprises regions 100 to 103, 126 and 127. Region 102 is “displaced away from” an “active” region which comprises regions 126 and 127.

Claims 45, 49-52 and 68-71 are rejected under 35 U.S.C. 102 as unpatentable as shown by Custode et al. See Figures 1, 13. The “first” and “second” areas and dielectric materials read on inherent subportions of field oxide 34. The “ion implanted” region comprises region 13, 49, which is “displaced away from” an “active” region which comprises region 73 and 74. In claim 68, the “isolation trench” does not distinguish over field oxide 34, which extends below a surface of a semiconductor substrate.

Claims 46, 49-52, 54, 55, 57, 59, 60, 68-71 and 73-75 are rejected under 35 U.S.C. 102 as unpatentable shown by Joo et al. See Figure 15. The “first” and “second” areas and dielectric materials read on inherent subportions of field oxide layer 65; the “ion implanted” region comprises layer 68, which is “displaced away from” an “active” region AA. The inherent subportion for the “first” area can be chosen to have an arbitrary thickness to comply with claim 55.

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The references are of record.

The arguments in the response, filed 18 May 2001, have been considered but are not persuasive, as noted above. If a "different" dielectric material is the invention, then under 35 U.S.C. 112, first paragraph, and 37 CFR 1.71, the identity of the other dielectric material must be clearly disclosed rather than kept secret. The specification only specifies silicon dioxide as the dielectric material (claims 71, 75). Contrary to the response (page 2), silicon dioxide whether thermally grown or deposited is still silicon dioxide. On page 3 of the specification, "another dielectric material" indeed may be intended to refer to silicon dioxide by chemical vapor deposition (CVD) rather than thermally grown silicon dioxide. However, then pages 3 and 6 support claims 71 and 75 rather than claims 72 and 76. The response (page 2) does not identify "another dielectric material" than silicon dioxide.

Contrary to the response (pages 3-8), claims 68 and 73 remain broad in scope. In terms of necessary resultant structure, an "ion implanted" P type region simply does not distinguish over a P type region or an inherent P type subregion in a substrate, absent *claiming* how the "ion implanted" P type region differs in structure from another subregion in a P type substrate. A "first" area and "second" area filled with the same dielectric material do not distinguish over two inherent subportions of the same dielectric material. Note that Virginia may be viewed as comprised of counties or other "areas", e.g., Northern Virginia and Tidewater. A "first area" of dielectric material in claim 68 is not limited to region 24 in the disclosed invention, just as a "first area" of Virginia is not limited to Arlington county.

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No claim is allowed.

This action is **FINAL**.

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of appropriate amount.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing , whichever is longer, of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

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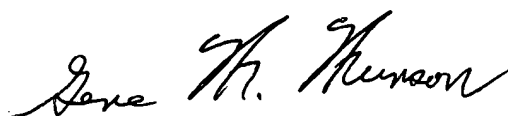
THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication should be directed to G. Munson at telephone number (703) 308-4925 or 0956.

Munson/nt

7/27/01



**GENE M. MUNSON
EXAMINER
GROUP ART UNIT 2811**